

REMARKS

The Office Action dated April 21, 2004 has been carefully considered. Claims 1 and 10 have been amended. Claims 1-29 are in this application.

Claims 15-29 are allowed.

Previously presented claims 1-6, 10 and 11 were rejected under 35 U.S.C. § 102 as anticipated by U.S. Patent No. 6,119,167 to Boyle et al. Applicants submit that the teachings of this reference do not disclose or suggest the invention defined by the present claims.

Boyle et al. disclose a method for processing data pushed over a network via a computer system intermediate between a source and destination in which the intermediate computer system receives the push data and if the intermediate system is unable to forward the pushed data to the destination for a predetermined length of time, the intermediate system deletes the pushed data never forwarding the pushed data to the destination.

The present invention is directed to a method and system for optimizing pull and push services by reducing access latency for the pull-service by using at least one factor selected from a frequency of access to the pull content, an update cycle of the pull content or a response delay for fetching the pull content.

In contrast to the invention defined by the present claims, Boyle et al. do not teach or suggest reducing access latency by prefetching documents into a cache of at least one proxy gateway by using at least one factor selected from frequency of access of mobile users to the pull content, an update cycle of the pull content and a response delay for fetching the pull content. As described on page 3, lines 27-30 of the present application, the method and system of the present invention use prefetching to optimize performance of the pull services by reducing access latency. In contrast, Boyle et al. is directed to deleting pushed data if it is unable to be forwarded after a predetermined length of time. However, there is no mechanism disclosed or suggested in Boyle et al. for a pull service to select pull documents that are to be prefetched.

Further, the Examiner indicated that the claimed update cycle of the pull content was disclosed in Boyle et al. as using a stock quote service to push the prices of a selected stock when the price changes and providing the latest version of the data in a browser proxy. Applicants submit that Applicants' update cycle of pull content is used as a feature for comparing documents

to determine which ones to select to be prefetched. Using the update cycle of the present invention of the pull content as a factor for determining if a document should be prefetched is very different than updating a given content price when the price changes and pushing the updated price to the intermediate server. In Boyle et al., there is no selection of documents to be prefetched based on the update cycle of the documents.

In addition, Boyle et al. do not disclose or suggest iteratively estimating a state of a mobile user to determine push content to be forwarded to the mobile user by the push service. As described on page 5, lines 20-24, of the present application, a state of a mobile user is estimated such as by mobile tracking, geo-location measurement and behavior observation to determine which push content to be forwarded to the user. For example, if the user is driving out on a highway, the user push content of traffic information may be of more interest and if the user is on the way to the office, the push content of the news may be of more interest. There is no mechanism for estimating a state of a mobile user in Boyle et al. Rather, Boyle et al. allows users to specify a preference for data push through a browser which is unrelated to a state of the user. However, in the present invention, the state of a mobile user is automatically estimated for determining the push content to be forwarded and is not selected individually by a user through a browser. Applicants submit that although Boyle et al. and the present invention describe push and pull services to mobile users, Boyle et al. is directed to pushing data to users and deleting data after a certain period of time, while the present invention is directed to reducing access latency by selecting which documents to be selected and when they are pushed.

With regard to claim 2, in the present invention, the predetermined number of documents to be prefetched in the cache is determined as the predetermined number of documents having the greatest reduction in access latency. For example, the predetermined number of documents may be determined by the capacity of the proxy gateway. In contrast, Boyle et al. teach a predetermined number of documents which is determined by a user's subscription to items of the push service. Further, the plurality of documents of the present invention are predetermined automatically by the factor relating to access frequency, update cycle and response delay, while in Boyle et al., the documents are predetermined by a user's explicit control. Moreover, Boyle et al. disclose reduction of access latency of push documents (Col. 11-Col. 12) but there is no

teaching or suggestion of reducing access latency of a pull service, as defined by the present claims.

With regard to claim 3, the present claim is directed to reducing access latency by prioritizing frequently accessed documents to be stored in a cache of the proxy gateway. In contrast, in Boyle et al. there is no teaching or suggestion of selection of prioritized documents and all the documents are sequenced without a mechanism to change their order.

With regard to claim 4, the present invention uses an update cycle as a factor for prioritizing pull documents to be stored in a cache of the proxy gateway. In contrast, in Boyle et al. there is no teaching or suggestion of using an update cycle to prioritize pull documents to be stored in the cache of a proxy gateway.

With regard to claim 5, the present invention uses a larger response delay as a factor for prioritizing documents to be stored in a cache of the proxy gateway. In contrast, in Boyle et al., there is no teaching or suggestion of using a larger response delay to prioritize pull documents to be stored in a cache of a proxy gateway.

With regard to claim 6, the present invention uses a factor of a shorter update cycle and larger response delay for prioritizing documents to be stored in a cache of the proxy gateway. In contrast, in Boyle et al. there is no teaching or suggestion of using a shorter update cycle and larger response delay for prioritizing documents to prioritize pull documents to be stored in the cache of a proxy gateway.

With regard to claims 10 and 11, claims 10 and 11 are believed to be allowable for the reasons that claims 1 and 2 are believed to be allowable.

Accordingly, Boyle et al. do not teach or suggest all of the features of the present invention and the present invention is not anticipated by Boyle et al.

Claims 7-9 and 12-14 were rejected under 35 U.S.C. § 103 as being obvious in view of Boyle et al. in combination with U.S. Patent No. 6,697,103 to Fernandez et al.

The invention of claim 7 relates to iteratively estimating a state of a mobile user from tracking data, geo-location measurement and behavior observation data to determine the state, i.e., mobility-related and behavior-related, push content that will be cached into a cache of a proxy gateway (claim 8). Claim 9 recites that the state is related to the factors of location,

moving direction, speed and behavior. For example, when a user is driving onto a highway, the user may be interested in traffic information, but when the user is walking on a street, the user may be interested in advertisements.

As described above, Boyle et al., do not disclose or suggest an estimation of a mobile user's state. Rather, Boyle et al. disclose subscribed contact that is not dynamically changeable with a transition of a state of a user.

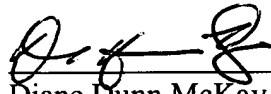
Fernandez et al. is directed to integrated imaging and GPS or network to monitor remote object movement. A browser interface displays objects and detectors. A database stores object position movements. Surveillance of an object is monitored by integrated monitoring positioned data with GPS.

In contrast to the invention defined by the present claims, Fernandez et al. do not teach or suggest iteratively estimating a state of a mobile user. Rather, Fernandez et al. is directed to recovering a location and an image signal of their behavior. Further, Fernandez et al. to not provide any consideration for relating a state of a mobile user with content to be pushed. Thus, Fernandez et al. do not cure the deficiencies of Boyle et al. noted above and the invention defined by the present claims is not obvious in view of Boyle et al. alone or in combination with Fernandez et al.

In view of the foregoing, Applicants submit that all pending claims are in condition for allowance and request that all claims be allowed. The Examiner is invited to contact the undersigned should he believe that this would expedite prosecution of this application. It is believed that no fee is required. The Commissioner is authorized to charge any deficiency or credit any overpayment to Deposit Account No. 13-2165.

Respectfully submitted,

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